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10/583,830	06/27/2007	Michael J. Macaluso		6308

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MICHAEL J. MACALUSO  
78 FOREST GLEN DRIVE  
HIGHLAND PARK, NJ 08904

EXAMINER
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THOMPSON, BRADLEY E

ART UNIT	PAPER NUMBER
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2612

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/583,830

**Applicant(s)**

MACALUSO ET AL.

**Examiner**

BRADLEY E. THOMPSON

**Art Unit**

2612

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 December 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 June 2010 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsman's Patent Drawing Review (PTO-940)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### **Status of Claims**

1. This is in response to the applicant's remarks filed on 12/17/2010.

Claims 1, 3, 6, 8, 10 are amended and claims 12-22 are new.

Therefore, claims 1-22 are presented for examination. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### **Drawings**

2. The drawings submitted on 06/22/2006 are acknowledged.

### **Response to Arguments**

1. Applicant's arguments filed 12/17/2010 have been fully considered but they are not persuasive.

#### **Claims 1-2:**

Applicant's remarks are directed to modulation schemes as it relates to the claim language "a communication operating mode" which has a broad and generic interpretation. As cited in the office action, Johnson is configurable to operate as a CO (central office) transceiver or as an RT (remote terminal) which meets the requirement of the claim language, i.e. "a communication operating mode".

Further, as mentioned in the rejection of claim 3, Kato teaches operation of his device in an OFDM modulation mode which does relate to both modulation scheme and “communication operating mode”.

### **Response to Amendment**

#### **Claim Rejections - 35 USC § 103**

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-2** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al. (US Patent Application Pub 2001/0028678; Kato) in view of Johnson et al. (US Patent 5,909,463; Johnson).

#### **Claim 1:**

Kato is drawn to apparatus and method for communication over power lines (PLC) (paragraph 1) which has transmit and receive capabilities (figure 1). He exhibits modules (figure 1) for producing electrical signals in accordance the PHY layer of a network protocol layer (paragraph 58). He discloses wherein his apparatus is able to operate in DMT communication mode or OFDM communication mode (paragraph 1) (reads on a power line communications "PLC" device having at least one of communications data transmission and reception capabilities comprises a physical communications protocol layer module adapted for operating in accordance with a plurality of communications signal transmission operating modes).

Kato exhibits IFFT 4 and FFT 14 modules (figure 1) which implement transform processing on data streams (reads on wherein the physical layer module includes a module for performing Fourier transform operations). However, he fails to disclose a selection module which serves to change communication operation modes.

In an analogous art, Johnson relates to a software adaptable transceiver on a single chip which has the capability to change operating modes. He exhibits a DSP core 60 which is tied to the FFT modules 73 via the PIO\_EB bus 62 (figure 2) (column 15 lines 58-59). The DSP core 60 has the capability to configure the transceiver for various operating modes (column 9 lines 32-53) (reads on a selection module coupled to the Fourier transform module, wherein the selection module provides for selection of a communications operating mode for the PLC device from the plurality of communications transmission modes, wherein each of the modes corresponds to a transmission data structure defined in accordance with power line network operating characteristics and communication protocol requirements).

Further, Johnson teaches wherein the FFT and IFFT modules are dynamically configurable (column 16 lines 38-40) (column 17 lines 3-5) (reads on wherein the Fourier module is dynamically configurable to perform data processing operations in accordance with a selected communications signal transmission operating mode).

Hence, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kato with the DSP core of Johnson in order to invoke adaptability in a communication device (as taught by Johnson). A modification as such represents an improvement to Kato and would have predictable results.

Kato exhibits P/S 5 and S/P 15 modules tied to IFFT and FFT units respectively (figure 1) (reads on a module for converting between parallel and serial symbol data coupled to the selection module; wherein the symbol data converting module processes a transmission data block for the power line network based on the operating mode selected by the selection module).

**Claim 2** (see claim 1):

Johnson exhibits HPI module 68 which receives commands via the control port. DSP core 60 is in bidirectional communication with HPI (column 5 lines 43-48) (reads on wherein the selection module automatically selects the mode based on control data).

**Claim 3** (see claim 1):

As discussed in the rejection of claim 1, Kato discloses a PLC apparatus with an OFDM mode of operation (reads on wherein the modes include at least one of a wavelet-like filtered and a conventional OFDM-based communications operations modes, and wherein the at least one modes are operable on electric power lines having predetermined operating voltages and frequencies).

**Claim 8** (see claim 1):

As discussed in the rejection of claim 1, Johnson teaches a single chip transceiver (reads on wherein a portion of at least one of the Fourier transform, selection and data converting modules is implemented using a system-on-a-chip architecture).

**Claim 9** (see claim 8):

Kato teaches Reed-Solomon FEC on the data (paragraph 59) and, as discussed in the rejection of claim 1, exhibits an S-P module. Johnson exhibits frequency equalization FEQ 106 (figure 3) and teaches single-chip architecture (reads on wherein the PLC device further includes

at least one of a module for performing error correction, a module for performing data mapping, an equalization module and a module for converting between serial and parallel data, and wherein a portion of at least one of the error correction module, data mapping module, equalization module and data converting module is implemented using the system on a chip architecture).

**Claim 10** (see claim 1):

Johnson recites a software FFT 20 (figure 1) (column 4 line 48) and, as discussed in the rejection of claim 1, teaches a DSP core for mode selection wherein the DSP core is programmable (reads on wherein at least one of the Fourier transform, selection and data converting modules is implemented in software).

**Claim 11** (see claim 1):

Claim 11 is interpreted and thus rejected for the same reasons put forth in the rejection of claims 1, 9.

**Claims 12-14, 19-22:**

Claims 12-14, 19-22 are rejected for the same reasons put forth in the discussion of claims 1-3, 8-11; respectively, since the method is an inherent variation of the apparatus.

3. **Claims 4-7, 15-18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato and Johnson in further view of McFarland (US Patent Application Pub 2002/0006167; McFarland).

**Claim 4** (see claim 1):

Kato and Johnson fail to disclose mode selection based on dynamic analysis of the communication channel.

In a field of similar endeavor, McFarland is directed to an OFDM or DMT communication system which includes a means to select the operating mode based on explicit channel measurements (abstract). In particular, he teaches a means for setting the operating mode based on measurement of channel characteristics (paragraphs 49-50) (reads on wherein the selection module selects a mode based on data obtained from dynamic channel analysis of the power line network).

Hence, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kato and Johnson with selection means of McFarland since it serves to optimize system performance due to channel degradation or noise (McFarland paragraph 50).

**Claim 5** (see claim 1):

Kato and Johnson fail to disclose mode selection based on a communications profile.

In a field of similar endeavor, McFarland teaches a means for setting the operating mode based on multiple inputs e.g. mode forcing from protocol control (figure 10) (paragraph 45) (reads on wherein the selection module selects a mode based on data representative of communications profile requirements of the power line network).

Hence, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kato and Johnson with selection means of McFarland since it allows the system to communicate with legacy nodes (McFarland paragraphs 45, 57).



**Claim 6** (see claim 1):

Kato and Johnson fail to disclose mode selection based on an applications profile.

In a field of similar endeavor, McFarland teaches a means for setting the operating mode based on a priori knowledge (paragraphs 46-47) (reads on wherein the selection module selects a mode based on data representative of a communications connection oriented profile).

Hence, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kato and Johnson with selection means of McFarland since it allows the system to communicate with efficiency.

**Claim 7** (see claim 1):

Kato and Johnson fail to disclose mode selection based on the size of a symbol relative to a communications profile.

In a field of similar endeavor, McFarland teaches a means for setting the operating mode based on symbol rate and number of carriers (figure 10) (paragraphs 44, 45) (reads on wherein the selection module selects a mode based on the size of a symbol corresponding to an identified communications connection oriented profile).

Hence, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kato and Johnson with selection means of McFarland since it allows the system to communicate with legacy nodes (McFarland paragraphs 45, 57).

**Claims 15-18:**

Claims 15-18 are rejected for the same reasons put forth in the discussion of claims 4-7; respectively, since the method is an inherent variation of the apparatus.

**Conclusion**

2. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRADLEY E. THOMPSON whose telephone number is (571)270-5583. The examiner can normally be reached on M-F 8 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Bugg can be reached on 571-272-2998. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

BRADLEY E THOMPSON  
Examiner  
Art Unit 2612

/BET/

/George A Bugg/  
Supervisory Patent Examiner, Art Unit 2612